

ADDITIONS TO THE ACARINA OF AUSTRALIA (TROMBIDIIDAE AND CALYPTOSTOMIDAE)

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Fig. 1-10.

FAMILY TROMBIDIIDAE Leach 1814.

Subfamily TROMBELLINAE Sig Thor 1935.

Zool. Anz., 1935, cix, p. 108.

Genus CHYZERIA Canestrini 1897.

"Acari della Nuovi Guinea" Atti Soc. Venit., 1897, p. 463.

CHYZERIA QUEENSLANDICA n. sp.

Description: Colour red. Length 3.2 mm., width 1.6 mm. across shoulders. Dorsally with a long antero-median and two straight, longer, antero-lateral processes followed by four pairs of shorter lateral processes which are well chitinised and strongly curved inwards; no median posterior process either dorsally or ventrally. Crista present, short and wide, at the anterior end forming a pair of lobes overlapping the bases of the sensillary setae. Eyes 2 + 2, small, sessile. Palpi as figured; tibia with short blunt claw, and rather smaller, blunt, accessory claw, and a row of spines.

Legs long, I 2.7 mm., II 1.7 mm., III 1.95 mm., IV, 3.05 mm.; tarsus I 697 μ long, 204 μ high; metatarsus I 425 μ long.

The setae of the dorsum and dorsal processes are numerous and long, to 95 μ , simple spines, interspersed, particularly on processes, with long, 108 μ ciliated setae, of which the stem is almost as strong as the spines. Sensillae 108 μ long.

Loc. A single ♀ from Cairns, Queensland, 1939 (W. G. Heaslip).

Remarks: In the long antero-median process this species is near to *C. australiense* v. *musgravei* Hirst, but differs in that this process is very much longer.

It also differs in the lack of the very fine, numerous setae interspersed amongst the dorsal spines of *australiense*, as well as in the more pronounced and curved lateral dorsal processes.

As Hirst states (Proc. Zool. Soc., 1929, (1), p. 165) that Canestrini's *C. ornata* (the genotype) also has a long antero-median process, this new species may possibly be the same, but Canestrini's brief description without figures, is inadequate.

Subfamily JOHNSTONIANINAE Sig Thor 1935.

Zool. Anz., 1935, cix, p. 108.

Genus CENTROTROMBIDIUM Kramer 1896.

Zool. Anz., 1896, xix, p. 445.

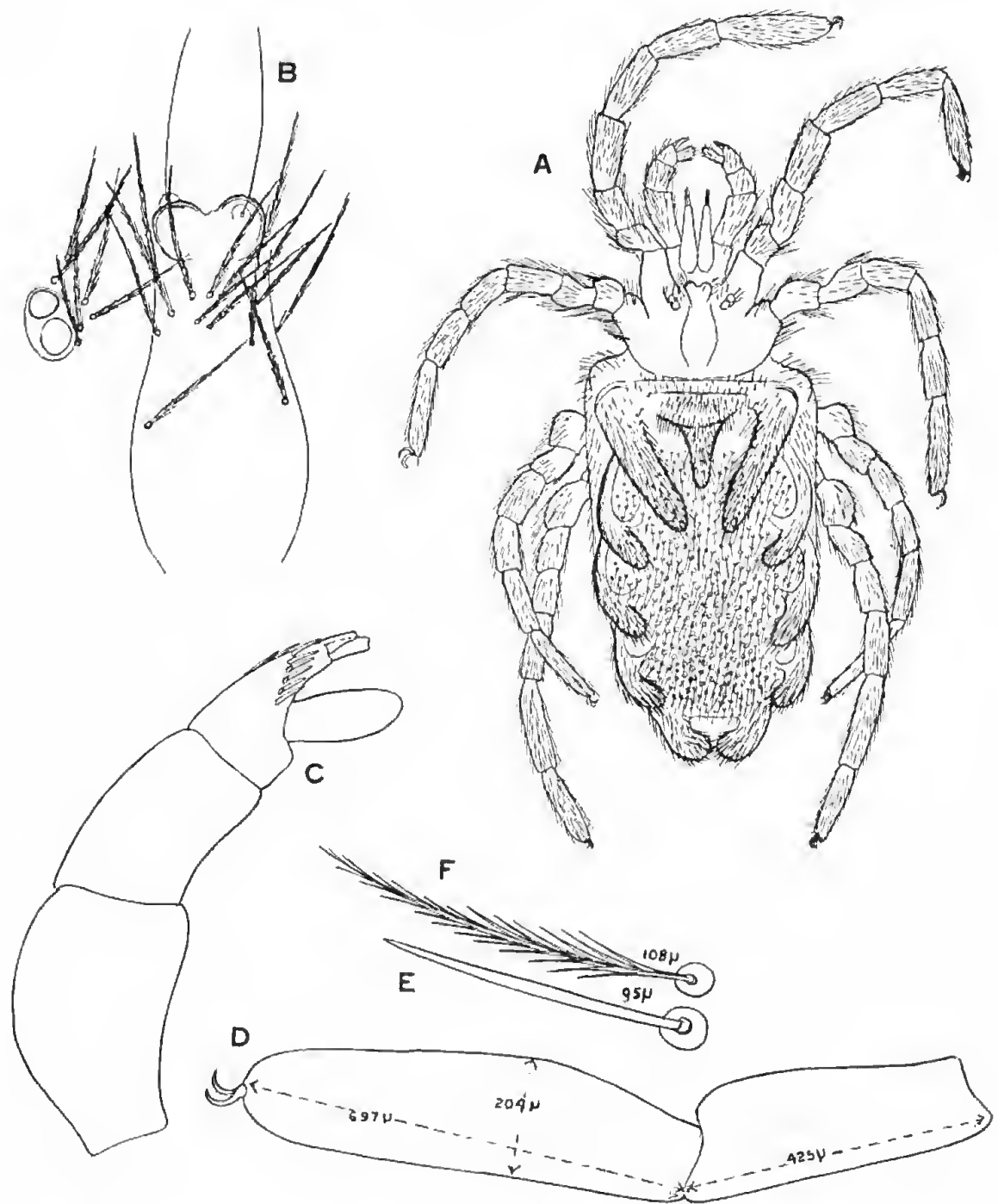


Fig. 1. *Chyseria queenslandica* n.sp. A. dorsal view; B. crista and left eyes; C. palp; D. front tarsus and metatarsus; E. spine-like dorsal seta; F. ciliated dorsal seta.

CENTROTROMBIDIUM AUSTRALASIAE n. sp.

Description: Adult, in life probably red, mounted brownish. Body with prominent squarish shoulders, parallel sides and rounded apex; anterior end as a short blunt snout. Length 1020μ , width 510μ . Crista short with large subposterior sensory area, 62μ wide, carrying a pair of long, slender, naked, apically clavate sensillary setae, 130μ long; anterior of these setae is a pair of strong, curved, indistinctly ciliated setae, 48μ long. Ocular shields on each side of sensillary area

triangular, sessile, with two eyes on each, of which the anterior are much the larger.

The dorsal cuticle is strongly chitinized with numerous fine, simple, short, 12μ , curved setae arising from platelets which are closely packed together. Palpi and legs strongly chitinized with prominent reticulations. Palpi (fig. 2 B) large and stout; tibia with strong claw, tarsus with numerous simple setae, the two apical ones being strong and awl-like, and some of the others widened basally. Mandibles as in fig. 2 D. Legs relatively short, I 570μ , II 540μ , III 485μ , IV 620μ ; tarsus I 175μ long by 95μ wide, metatarsus I 80μ long. All tarsi without scopulae. Leg setae feathered on one side; on tarsus I interspersed with simple short clavate setae (cf. fig. 2 F).

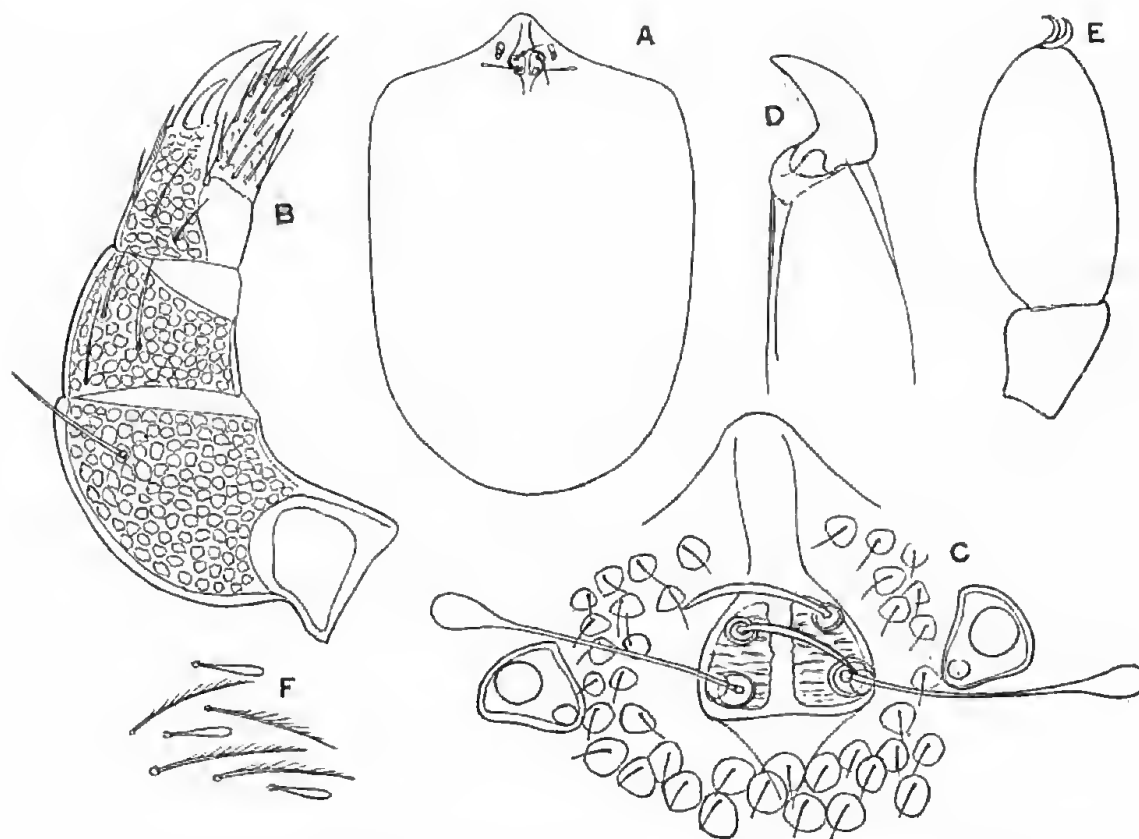


Fig. 2. *Centrotrombidium australasiae* n.sp. A. dorsum; B. palp; C. crista and eyes; D. chela; E. front tarsus; F. setae from front tarsus.

Loc. Seven specimens from moss. Cairns, Queensland, 1939 (W.G.H.).

Remarks: This genus was established by Kramer for *C. schneideri* from the island of Borkum, Germany. Up to the present time no other species has been described, so that it is particularly interesting to find a second species, this time from Australia.

Kramer *loc. cit.* only figures the palp of *schneideri*, but Vitzthum 1939 in the Handbuch Zool. Bd. III, Hft. 2, p. 63, gives an excellent figure of the crista, eyes, etc., and from this our species can be differentiated by (1) the very long and slender stalked sensillary setae, (2) the more pronounced and slender nasus, and (3) the smaller and less compact dorsal platelets.

Genus *CROSSOTHROMBium* Womersley 1939.

Trans. Roy. Soc., S. Aust., 1939, lxiii (2), p. 152.

CROSSOTHROMBium PARKHOUSEI Womersley 1939.

loc. cit.

Originally described and recorded from Second Valley, South Australia, it has recently been collected by Mr. N. B. Tindale in Victoria, 1942.

Subfamily *PODOTHROMBIINAE* Sig Thor 1935.

Zool. Anz. 1935, cix, p. 109.

Genus *PODOTHROMBIUM* Berlese 1910.

Redia, 1910, vi, fasc. 2, p. 354.

PODOTHROMBIUM TUBBI n. sp.

Description: Colour in spirit white, in life unknown. Shape cordate, swollen, very slightly constricted medially, and anterior of opisthosoma overhanging prosoma. Length 2.5 mm., width 1.75 mm. Crista with well developed sensillary

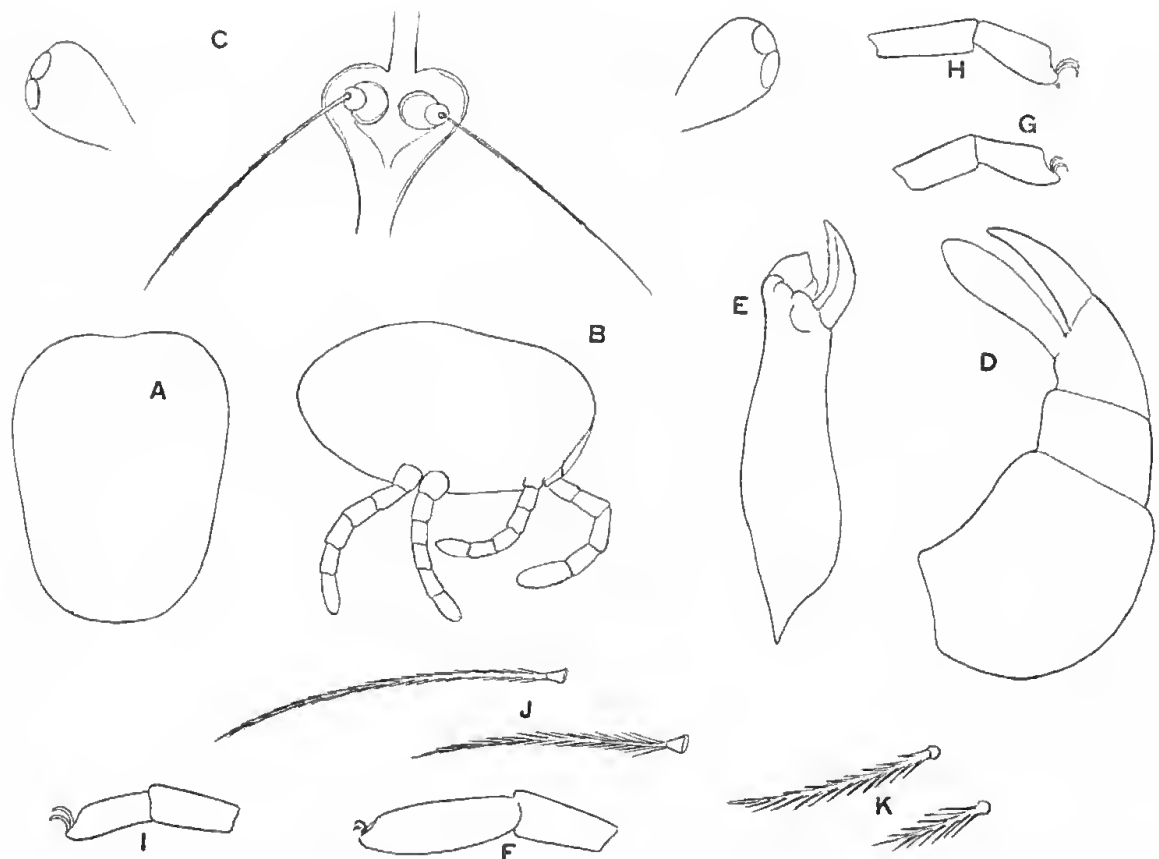


Fig. 3. *Podothrombium tubbi* n.sp. A. dorsum; B. side view; C. crista and eyes; D. palp; E. mandible; F. tarsus and metatarsus, leg I; G. same, leg II; H, same, leg III; I. same, leg IV; J. dorsal setae; K. ventral setae.

area, but very short anterior and posterior stem, its whole length 170μ ; sensillary setae only indistinctly ciliate, 170μ long. Eyes $2 + 2$, on long, 78μ , outstanding peduncles. Chelae of mandibles with finely serrated inner edge. Palpi as in figure, tibia with only one claw, no accessory claw or spines; tarsus slightly clavate and overreaching tip of tibial claw. Legs short, I 1170μ , II 1000μ , III 850μ , IV 850μ long, tarsus I elongate ovate, 335μ long by 117μ high, metatarsus I 250μ long.

Dorsal setae of two sizes, 100μ and 65μ , slender with moderately long ciliations; ventral setae similar but somewhat stouter, 65μ and 30μ long.

Loc. Two females from Julia Percy Island, New South Wales, Feb. 1936 (A. Tubb).

Remarks: At first sight this species suggests a *Trombicula* but differs therefrom in the pedunculate paired eyes, the lack of accessory claw and spines on the palpal tibia and the serrate mandibular chela. It appears to fall into Berlese's *Podothrombium* and is tentatively placed there, although the ocular peduncle is not short as in the known European species of that genus.

Subfamily TROMBICULINAE Ewing 1929.

Monog. External Parasites, 1929, p. 23.

Genus TROMBICULA Berlese 1905.

Acari nuovi Manip., 4, 1905, p. 155.

TROMBICULA ELEGANS n. sp.

Description: Female. Very narrow elongate species; length 1.67 mm.; width of both prosoma and opisthosoma 0.58 mm., opisthosoma about twice length of

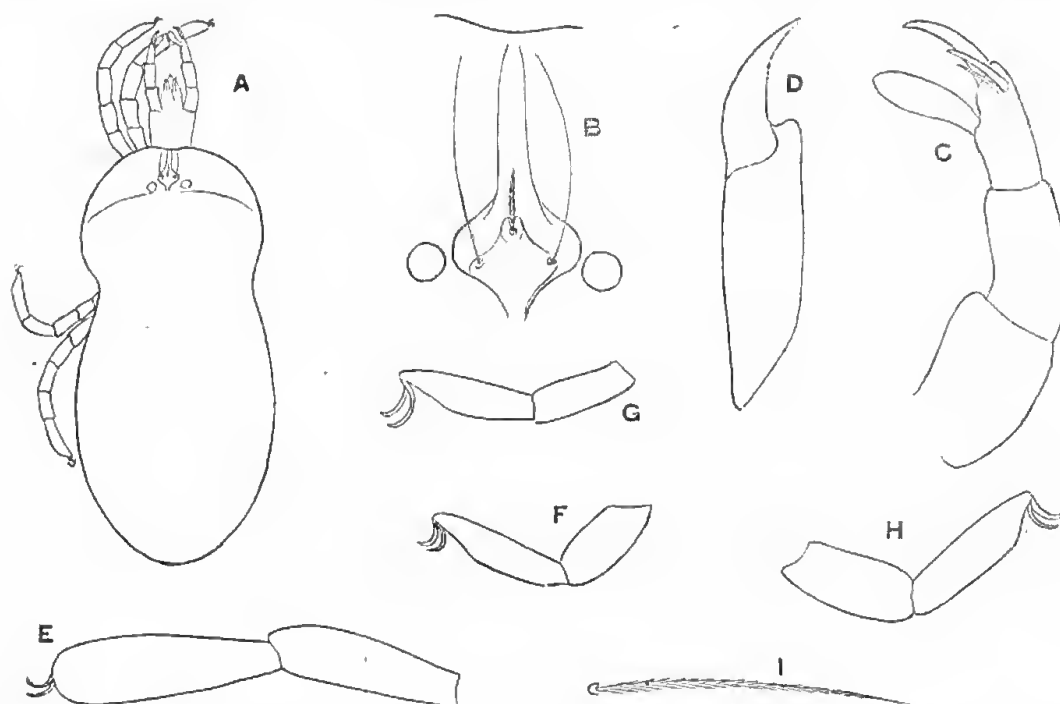


Fig. 4. *Trombicula elegans* n.sp. A. dorsal view; B. crista and eyes; C. palp; D. mandible; E. tarsus and metatarsus, leg I; F. same, leg II; G. same, leg III; H. same, leg IV; I. dorsal seta.

prosoma. Colour in spirit white. Crista normal, with a single closely adjacent eye on each side on a level with the bases of the sensillae. Sensillae long and apparently nude. Palpi as in fig. 4 C, tibia with claw, accessory claw and one strong spine, tarsus slightly overreaching tip of claw. Chela of mandible with slightly serrate inner edge. Legs short, I 1000μ , II 665μ , III 650μ , IV 900μ long; tarsus I 275μ long by 67μ high, metatarsus 275μ long.

Dorsal setae numerous, fine and slender, with ciliations, to 70μ in length, uniform.

Loc. Two females from Lush Is., South Australia, December 1936. McCoy Exped.; from just about high water mark.

Remarks: Differs from the other adult species of *Trombicula* known from Australia in its elongate build; from *T. tindalei* Wom. in the presence of eyes and from *T. signata* in the palp and dorsal setae.

Subfamily OTTONIINAE Sig Thor 1935.

Zool. Anz. 1935, cix, p. 110.

= *Microtrombidinae* Wom. 1937. Rec. S. Aust. Mus. vi (1), p. 82.

Genus CALOTHROMBIUM Berlese 1919.

Redia, 1019 xiii, p. 94, p. 190, p. 199.

CALOTHROMBIUM HEASLIPI n. sp.

Description: Colour red. Length 1360μ , width 850μ , broadest across shoulders. Eyes 2 on each side, sessile. Crista normal 189μ long, with posterior sensillary area and paired fine sensillae. Legs stout and relatively short, I missing, II

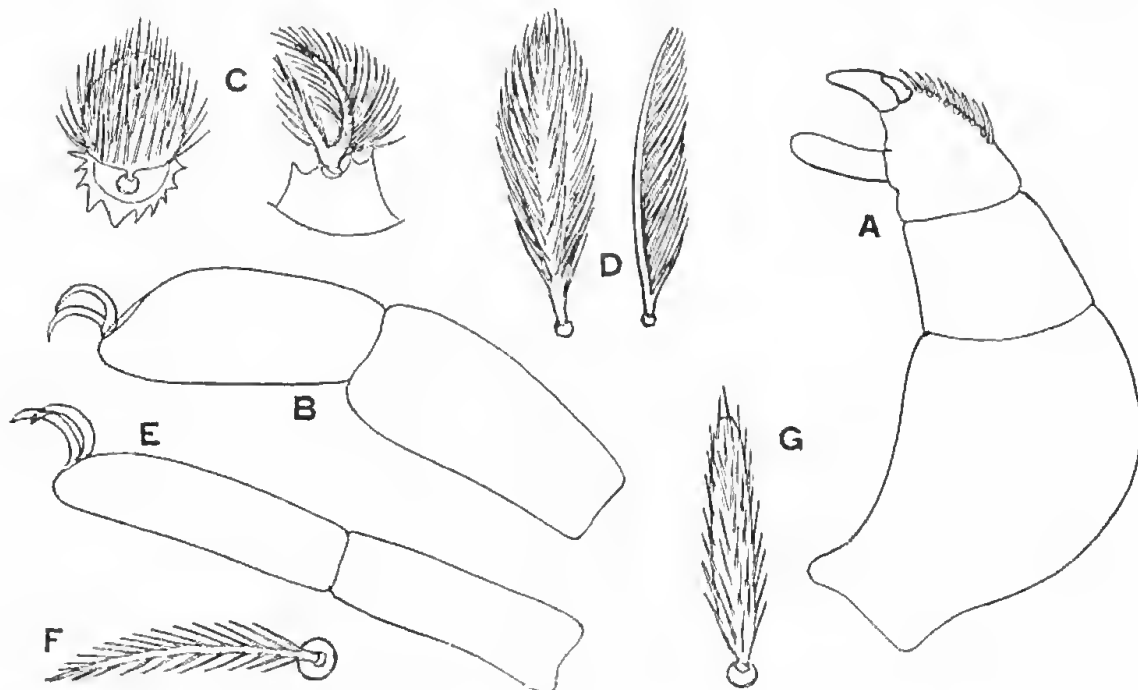


Fig. 5. A-D. *Calothrombium heaslipi* n.sp. A. palp; B. tarsus and metatarsus IV; C. dorsal setae; D. leg setae. E-H. *C. tubbi* Wom. for comparison; E. tarsus and metatarsus IV; F. seta from front of opisthosoma; G. leg seta.

680 μ , III 765 μ , IV 1450 μ ; tarsus IV 240 μ long by 102 μ high, metatarsus IV 255 μ long. Dorsal setae bifurcate, as figured, somewhat similar to *C. tubbi* Wom. but with longer ciliations and longer basal tubercle, 21.5 μ , on anterior margin of hysterosoma and around the sensillary area the hairs are simple and elongate, 32 μ long as figured; on the basal leg segments as in fig. 5 D, 32 μ long. Palpi stout as in fig. 5 A.

Loc. A single specimen from Cairns, Queensland, 1939 (W.G.H.).

Remarks: Very close to *C. tubbi* in the form of the dorsal setae, but these have much longer cilia on the lamellae. It also differs in the setae on the front of the hysterosoma and around the sensillary area which in *tubbi* are long, 41 μ , and pointed. The legs of this new species are also very much stouter.

Genus MICROTROMBIDIUM Haller 1882.

Jahresh. Ver. Württemb. 1882, xxxviii, p. 322.

Subgen. MICROTROMBIDIUM Haller 1882, s. str. Berlese 1912.

MICROTROMBIDIUM (M.) MACULATUM n. sp.

Description: Colour dark red except in the area of the crista and the eyes, and on fifteen circular areas on the dorsum which are whitish. Shape elongate oval, wider on anterior half. Length 1040 μ , width 720 μ . Eyes 2 + 2, on distinct ocular

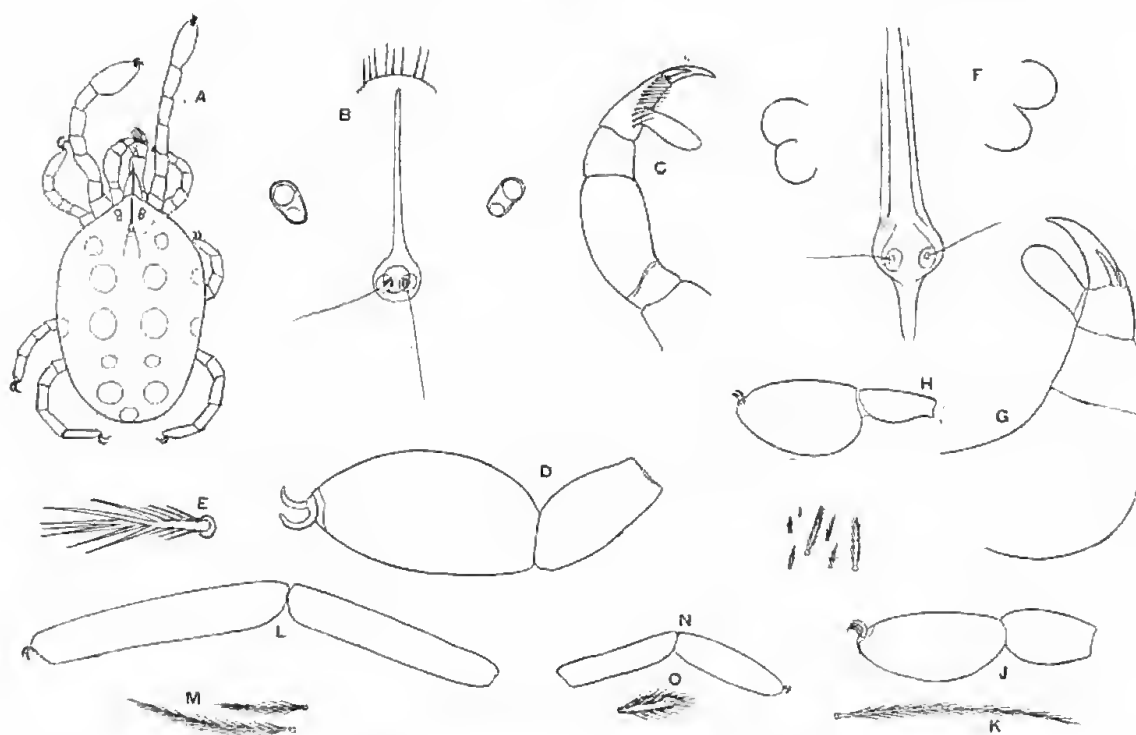


Fig. 6. A-E. *Microtrombidium* (M.) *maculatum* n.sp. A. dorsal; B. crista and eyes; C. palp; D. front tarsus and metatarsus; E. dorsal seta. F-I. *M. (M.) tubbi* n. sp. F. crista and eyes; G. palp; H. front tarsus and metatarsus; I. dorsal seta. J-K. *M. (Dromothrombidium) macro-podum* Berl. J. front tarsus and metatarsus; K. dorsal seta. L-M. *M. (D.) dromus* Wom. L. front tarsus and metatarsus; M. dorsal seta. N-O. *M. (D.) attolus* (Banks). N. front tarsus and metatarsus; O. dorsal seta.

shields; posterior eyes the smaller. Crista present, 240μ long, with posterior sensillary area bearing a pair of long filamentous sensillae 108μ long. Legs relatively short, I 1040μ , II 608μ , III 480μ , IV 720μ ; tarsus I 255μ long by 125μ high, widest slightly before the middle, metatarsus I 150μ . Dorsal setae numerous and uniform, 30μ long as figured; all the setae are densely pigmented except those on the white patches.

Remarks: Unlike any other Australian species in the dorsal spots.

Loc.: A single specimen from a rotting tree-fern log at Belgrave, Victoria, November, 1941 (O.W.T.).

MICROTROMBIDIUM (M.) TUBBI n. sp.

Description: Colour uniformly red. Shape cordate. Length 1.5 mm., width 1.0 mm. Crista with posterior or subposterior sensillary area with relatively short fine sensillae. Eyes $2 + 2$, large, anterior of sensillary area, the anterior eyes the larger. Palpi as figure, tibia with strong claw and two accessory claws, tarsus clavate, not quite reaching tip of claw. Legs of only moderate length, none longer than body. Tarsus I 275μ long by 156μ high, with a distinct basal angle and widest at one-third from base. Dorsal setae of two different lengths, but generally similar, long setae 33μ , short 16μ , long ones not tapering apically.

Loc. Two specimens from Julia Percy Island, New South Wales, February 1936 (A. Tubb).

Remarks: This species is close to *M.(M.) karriense* Wom. and also to *M.(M.) tasmanicum* Wom. in the shape and dimensions of the front tarsus but differs in the two lengths of the dorsal setae and in the accessory spines or claws of the palpal tibia.

Subgen. DROMETHROMBIUM Berlese 1912.

Redia, 1912, viii, p. 131, p. 132.

KEY TO THE AUSTRALIAN SPECIES.

1. Dorsal setae of two sizes, but uniform about 100μ and 50μ . Tarsus I 600μ long by 100μ high.
M.(D.) dromus Wom. Fig. 6 L-M.
 Dorsal setae uniform in size. Tarsus I shorter, about $300-350\mu$ 2.
2. Front tarsus 340μ by 178μ , elliptical, metatarsus shorter than tarsus. Dorsal setae slender, to 54μ , with ciliations. Front legs very thick. *M.(D.) macropodum* Berl. Fig. 6 J-K.
 Front tarsus 300μ by 85μ , elongate, metatarsus about equal to tarsus. Dorsal setae short, 27μ , and thick with long ciliations. Front legs more slender.
M.(D.) attolus Bands. Fig. 6 N-O.

Genus ECHINOTHROMBIUM Womersley 1937.

Rec. S. Aust. Mus. 1937, vi (1), p. 89.

ECHINOTHROMBIUM QUEENSLANDIAE n. sp.

Description: Colour in life red. Length 1600μ , width 1200μ . Crista with posterior sensory area, with paired sensillary setae, length 148μ . Dorsal setae of two kinds, long and slender, with conspicuous short ciliations which are more distinct on the more anterior setae; these long setae are to 85μ by 3.5μ wide; short setae are 21μ long by 8μ wide, somewhat compressed laterally and not cylindrical, with rows of pointed serrations. Palpi stout as figured, tibia with short stout

claw, similar but smaller accessory claw, and a row of about 12 spines. Legs short, I 715μ , II 475μ , III 529μ , IV 765μ , tarsus I as figured, 162μ long by 95μ wide, metatarsus I 108μ . Ventrally the setae are as on the dorsum. Eyes sessile, two on each side.

Loc. A single female from Lantana debris, Gympie, Qld., 27 April, 1940. (D.J.W.S.).

Remarks: This species is very close to *E. southcotti* Wom. differing in the more slender and more ciliated major dorsal setae, the minor setae having serrations rather than long ciliations, and in the smaller front tarsi.

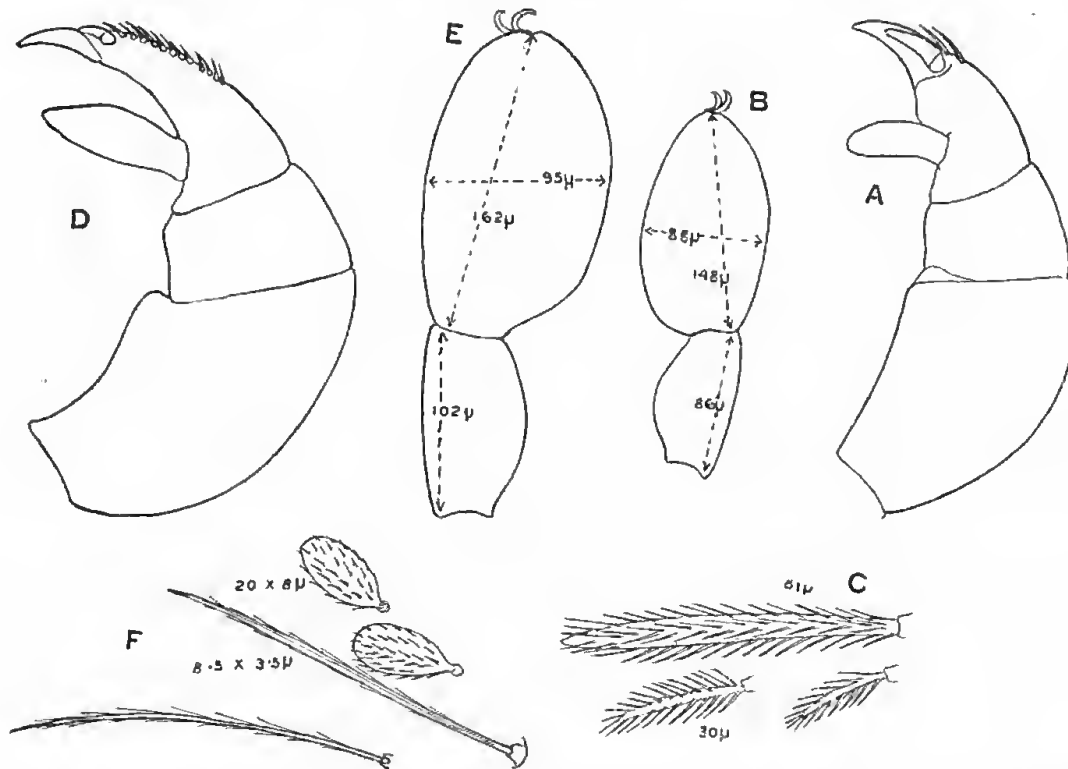


Fig. 7. A-C. *Echinothrombium hystericinum* (Canest). A. palp; B. front tarsus and metatarsus; C. dorsal setae. D-F. *E. queenslandiae* n. sp. D. palp; E. front tarsus and metatarsus; F. dorsal setae.

ECHINOTHROMBIDUM HYSTRICINUM (Canest 1897).

Ottonia hystericina G. Canestrini 1897. Termes Fuzet, xxi, p. 193.

Microtrombidium hystericinum Berlese 1912, Redia viii, p. 160.

Microtrombidium hystericinum Vitzthum 1926, Treubia viii, p. 133.

Originally described from Berlinhafen, New Guinea, it was later recorded by Vitzthum from Prince Island, Sunda Strait.

I have material from the following Queensland localities: Malonda, Aug. 1935 (Parkhouse); Gympie, April 1940, in Lantana debris (D.J.W.S.).

Genus ENEMOTHROMBIDUM Berlese 1910.

Redia, 1910, vi, fase. 2, 258.

ENEMOTHROMBIUM GAMBIENSE n. sp.

Description: Colour red. Length 3.0 mm., width 2.3 mm. Crista with sensillary area at one-third from posterior end, with paired sensillary setae. Eyes $2 + 2$, sessile. Dorsal setae of two kinds and two sizes; larger 40μ , eup-shaped with distinct septum and open end, with long eiliations; smaller 16μ , broadly cup-shaped with shorter eiliations. At the anterior end of erista is a bunch of long, 80μ , slender, ciliated setae, and on each side of these some stouter, shorter, 30μ , eiliated setae; on the dorsal surface of the legs the seta are 30μ long, clavate and eiliated. Legs, I 1700μ , II 1275μ , III 1275μ , IV 1870μ ; tarsus I 340μ long by 120μ high, metatarsus 255μ . Palpi normal, fairly stout, with stout tibial claw and accessory elaw, and row of accessory spines.

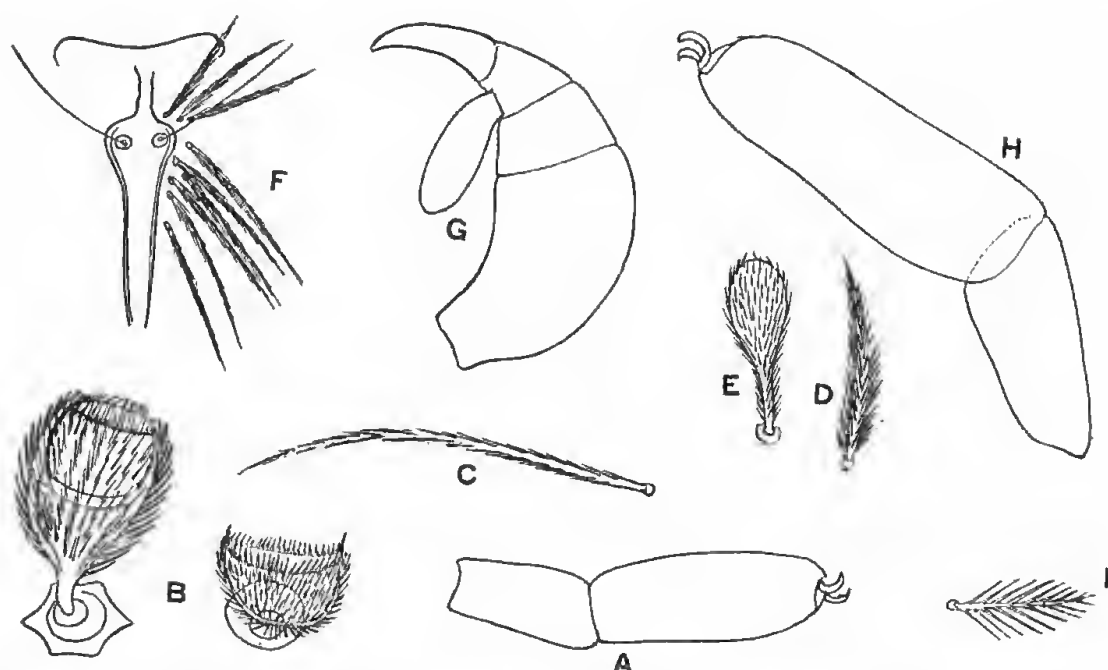


Fig. 8. A-E. *Encmothrombium gambiense* n.sp. A. front tarsus and metatarsus; B. dorsal setae; C. seta from front of crista; D. seta at side of crista; E. seta from dorsal surface of leg. F-I. *Caenothrombium burraensis* n.sp. F. crista; G. palp; H. front tarsus and metatarsus; I. dorsal seta.

Loc. A single specimen under a log, Shoulder of Mutton Lake, Mount Gambier, South Australia, January, 1941 (J.S.W.).

Remarks: In the form of the dorsal setae this species does not fit in with any known form in which the major setae are septate.

Subfamily TROMBIDIINAE Mich. 1883 (part) Sig Thor 1935.

Zool. Anz., 1935, cix, p. 111.

Genus CAENOTHROMBIUM Oudemans 1927.

Ent. Bericht, 1927, vii, p. 230.

CAENOTHROMBIUM BURRAENSIS n. sp.

Description: Colour in life red. Length 935μ , width across shoulders 680μ . Eyes $2 + 2$, pedunculate. Crista typical of the genus, 162μ long, as figured. Dorsal setae on propodosoma long and ciliated, 68μ ; on hysterosoma uniform and short with long ciliations, 25μ . Legs I 1240μ , II 756μ , III 680μ , IV 985μ ; tarsus I 374μ by 136μ , with almost parallel sides; metatarsus I 255μ .

Remarks: This relatively small species differs from all known Australian forms in the uniformly short dorsal setae.

Loc. A single specimen from an ants' nest, Burra, South Australia, August 4th, 1940 (J.S.W.).

Genus *TROMBIDIUM* Fabr. 1775.

Syst. Ent. 1775, p. 430.

TROMBIDIUM HEMISTRIATUM n. sp.

Description: Larva, newly hatched and unfed. Length 279μ , width 162μ , widest between coxae II and III. Mouth parts not visible from above, enclosed in a chitinous ring. Dorsal surface with two median scuta, anterior with 6 normal feathered setae and a pair of sensillary setae which are apparently naked; anterior portion of this scutum going over on to the venter, but all the setae on the dorsal part, the scutum is porous and longitudinal striated laterally, it is 162μ long and 135μ wide; the posterior dorsal scutum is 35μ long and 135μ wide, with 2 ciliated setae, porous and longitudinally striated laterally. Eyes $2 + 2$ on distinct ocular shields, the posterior eye the smaller. Dorsal setae feathered, arranged 4.4.6.4.2.2 the median pairs of first and second rows on small platelets. Ventrally coxae I and II touching, coxae I with two feathered setae, II and III with one, no setae between coxae I but a pair between coxae III; posterior of III with 2.4.2 setae, the posterior pair longer. Legs as figured, I 243μ long (including coxae), II 200μ , III 230μ ; tarsus III with deformed claw as figured.

Fully engorged larva, 700μ long, 440μ wide as figured.

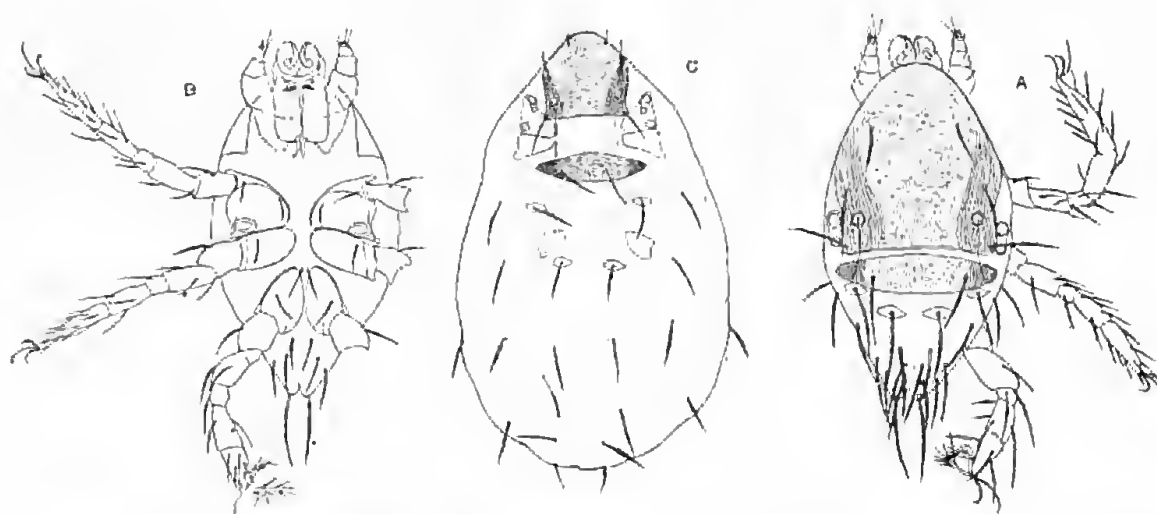


Fig. 9. *Trombicula hemistriatum* n.sp. (larva). A. dorsal, unfed; B. ventral, same; C. dorsal, fully gorged.

Remarks: In his key, Oudemans 1912, separates the genera of larval *Trombidiidae* into two groups, A2 B1 with the dorsal scuta porous but not striated and A2 B2 with the scuta longitudinally striated. The genus *Trombidium* falls into the second group.

The species described here, while having only partially striated scuta, fits entirely in *Trombidium*. It is, in fact, in the arrangement of dorsal setae, with the median members of the first and second rows on platelets, very close to *Trombidium demeyeri* Ouds. from Holland.

From *T. clarki* Wom. from Victoria it differs in the partially striated scuta, and in the dorsal setae not being arranged 2.4.4.4.2, with none on platelets.

Loc. and Host: Ten specimens, 4 fully engorged, the rest unfed, from a fly, Kenilworth, Queensland, 4 March, 1940 (D.J.W.S.).

FAMILY CALYPTOSTOMIDAE Oudemans 1923.

Genus CALYPTOSTOMA Cambridge 1875.

Ann. Mag. Nat. Hist., 1875 (4), xvi, p. 384.

CALYPTOSTOMA VELUTINUS (O. F. Müll. 1776).

Acarus velutinus O. F. Müller Zool. Dan. Prodr. 1776, p. 187.

Trombidium expalpe Hermann Mem. Apt. 1804, p. 30.

Smaris expalpis Berl. A.M.S. ital. Rept. 1887, fasc xxxix, No. 2.

Calyptostoma velutinus Ouds. Krit. hist. averz. Acar. 1929, ii, p. 596.

Description: Adult. Colour in life red, with conspicuous eyes and sensillary bases. Mouth parts hidden from above. Eyes 2 + 2, placed well behind the sensillae. Crista absent. Paired sensillary setae 108μ long, indistinctly ciliated and arising from a pair of adjacent bases as in fig. 10 D; these bases are 290μ behind the apex of body. The body shape is as figured by Berlese (*loc. cit.*). Dorsal setae 54μ long, curved, arising from platelets (fig. 10 E) between which the cuticle is reticulated; the setae are numerous and uniform and shaped as in fig. 10 K. Palpi as in fig. 10 B, apical segment twice as long as wide, with numerous long setae, but no very definite tibial claw. Mandibles (fig. 10 C) long and slender with a single chela. Ventrally with the coxae in two pairs and all coxae with numerous setae; the cuticle reticulated (fig. 10 F) but the setae fine and straight and arising from platelets. Legs relatively short, I 1020μ , II 935μ , III 935μ , IV 1200μ ; tarsus I 243μ long by 120μ wide; all tarsi without scopulae; claws two.

Nymph: Similar to adult, but genital opening with only two pairs of discs. Length 1600μ , width 1190μ . Sensillae 235μ back from apex of body. Legs I 1190μ long, II 935μ , III 1100μ , IV 1190μ ; tarsus I 216μ by 81μ ; claws two.

Larva: Colour red. With only 3 pairs of legs, tarsi with 3 claws, otherwise as in nymph and adult. Length 357μ , width 290μ . Sensillae 108μ back from apex of body. Palpi short and stumpy (fig. 10 I). Mandibles relatively shorter and stouter than in adult. Legs I 340μ , II 306μ , III 350μ ; tarsus I 108μ by 40μ ; coxae I and II touching with the stigmata between, all coxae as in nymph and adult but with fewer setae.

Loc. Fiji, one adult Viti Levu in the South Australian Museum (coll. A. M. Lea), Australia. Queensland; Cairns 4 nymphs, 2 larvae (coll. W. G. Heaslip 1939).

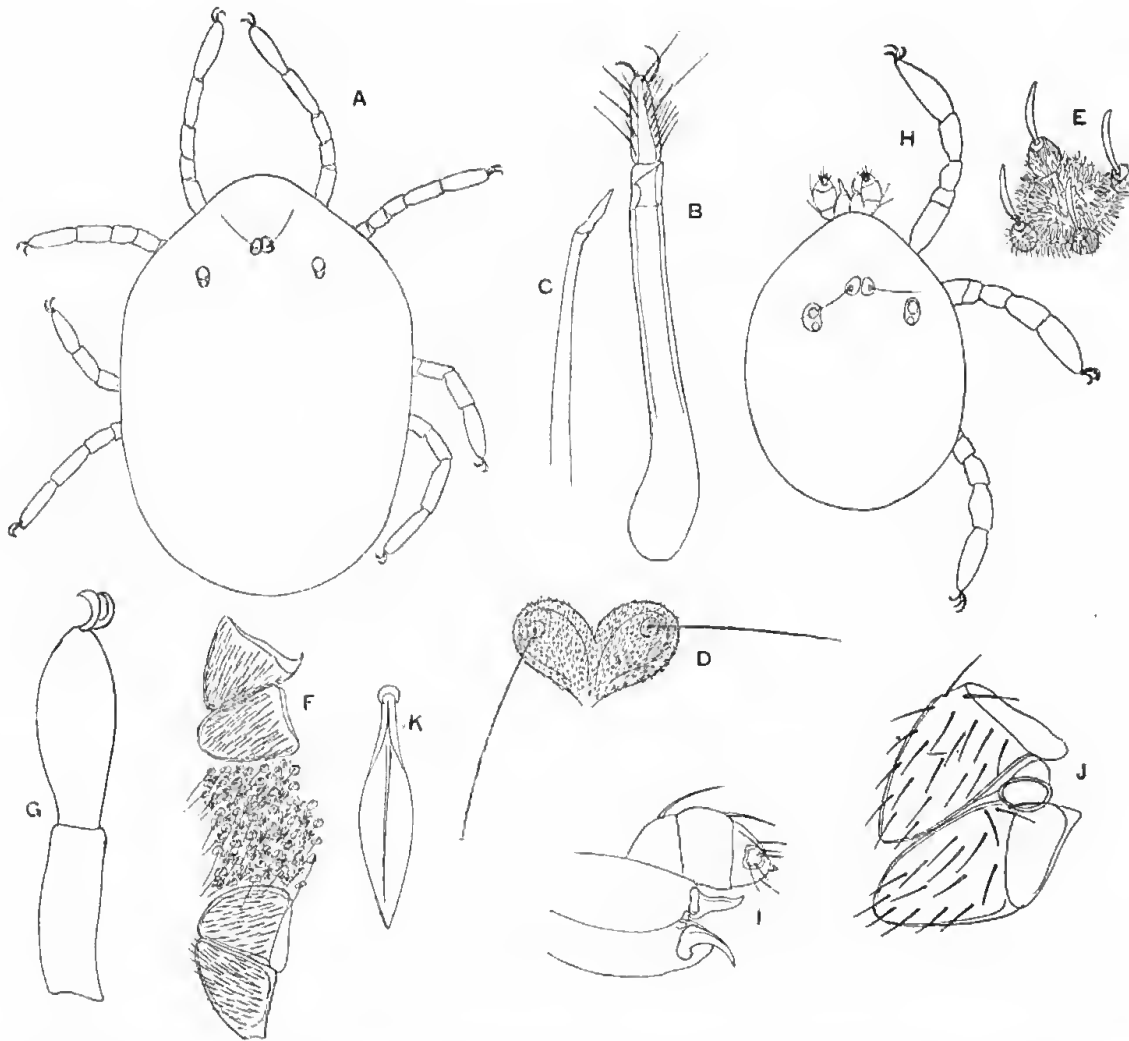


Fig. 10. *Calyptostoma velutinus* (O. F. Müll.). A. dorsal; B. palp; C. mandible; D. sensillary area and setae; E. dorsal setae; F. right coxae; G. front tarsus and metatarsus; H. dorsal, larva; I. chelicerae and palp, larva; J. anterior right coxae, larva; K. dorsal seta, larva.

Remarks: In spite of the countries from which I now record this species I cannot find any differences from Berlese's figures to warrant describing it as a new species. In his fine work on the history of Acarology Oudemans refers Herman's species to *velutinus* O. F. Müll. and I have found him in the synonymy.

Calyptostoma caelatum (Berl.) Vitz. from Malaya differs in having some simple, long and fine setae between the normal dorsal setae.